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cc: Beth
Tom
Paul

State of Utah

Department of
Environmental Quality

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

Richard W. Sprott
Executive Director

DIVISION OF ENVIRONMENTAL
RESPONSE AND REMEDIATION
Brad T Johnson
Director

ERRC-343-07

October 19, 2007

Mr. Francisco Benavides, Manager - Sustainable Development and Environment
Kennecott Land
5295 South 300 West, Suite 475
Murray, Utah, 84107

RE: Post Removal Sampling and Analysis Report – South Jordan Evaporation Ponds and Bastian Sink sites, dated April 5, 2007.

Dear Mr. Benavides:

The Division of Environmental Response and Remediation (DERR) and the U.S. Environmental Protection Agency, Region VIII (EPA) have reviewed the two referenced sampling and analysis reports. Based on a limited quality assurance evaluation (as required under the 2006 Operation & Maintenance Plan), Kennecott Land reports that the analytical results verify the completion of required remedial activities and the attainment of a final surface grade with an average lead and arsenic concentration below 500 parts per million (ppm) and 50 ppm, respectively. The DERR and the EPA (herein referenced as the Agencies) however, have a few comments that need to be addressed and the Agencies would like to discuss the provision of an addendum to the referenced reports. Prior to this discussion, please direct your attention to the enclosed comments.

The enclosed comments are intended to assist Kennecott Land with clarifying the information provided in the reports. The comments are primarily focused on the quality control/quality assurance information. The comments are applicable to both reports (in general), or as otherwise noted in the comments provided.

Please contact me at 801-536-4282, so we can initiate a conversation on how to address the enclosed comments.

Sincerely,

Douglas Bacon
Project Manager
Division of Environmental Response
and Remediation

Rebecca Thomas
Remedial Project Manager
US Environmental Protection
Agency - Region VIII

Enclosure

DB/RT/eds

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Div. of Oil, Gas & Mining

cc: Beth Erickson, Utah Division of Oil, Gas and Mining
Mary Pat Buckman, Salt Lake Valley Health Department
Gary L. Edwards, M.S., Director, Salt Lake Valley Health Department

Agency Comments on the South Jordan Evaporation Ponds (SJEP) & Bastian Sink Post Removal Sampling Reports (dated April 5, 2007)

Specific Comments:

1) Section 5.1 and Table 1 (SJEP report): The soluble sulfate concentrations left within the post removal surface could potentially be considered elevated (median of 2005 ppm). Though the removal activities had the primary goal of removing metals of concern above the EPA-selected land use standards, it should be noted that soluble sulfate concentrations left within surface grade soils potentially could act as a source for further impacts to the underlying Zone B aquifer. Paste pH values for the soil samples were assessed to be potentially acidic in the areas that had elevated soluble sulfate. The low paste pH could potentially increase the solubility of the higher concentrations of soluble sulfate left in the surface grade soils, with the infiltration of surface water.

   In lieu of the redevelopment plan for Daybreak (which calls for the construction of the planned Oquirrh Lake over the SJEP consolidation area) the Agencies request that Kennecott Land submit an as-built engineering drawing of Oquirrh Lake constructed onsite. The Agencies desires to have definitive information that the lake is constructed in a manner that prevents infiltration of the water which might cause soil sulfate to dissolve and migrate into the underlying aquifer.

2) Section 5.2 and Table 2 (SJEP report): The data in Table 2 document exceedances of the arsenic unrestricted land use (or cleanup) standard of 50 ppm (characterization samples) in native soils, but for a few locations confirmation samples documenting Kennecott Land's remediation of these exceedances do not appear to have been collected within the same areas of the exceedances. Kennecott Land needs to explain how the confirmation samples collected and analyzed to date (pursuant to the EPA Region VIII approved sampling and analysis plan, SAP) are representative of the areas where exceedances were previously documented for native soils. The following sample points are examples of where there appeared to be no confirmation samples collected within the footprint of the exceedances, #EPCS-GP20.2 located in the footprint of Pond E and #EPCS-GP13.1 located in the footprint of Pond A6.

3) Section 6.0 Quality Assurance/Quality Control (QA/QC); (both reports): The Agencies note that the data evaluation performed by Kennecott Land only included an assessment of the precision of the analytical data produced (relative percent difference assessed for field duplicates). Though it is acknowledged that the EPA-accepted QAPP (Quality Assurance Project Plan) only required an evaluation of precision, a standard QAPP would normally include an evaluation of other PARCC (Precision, Accuracy, Representativeness, Comparability, and Completeness) parameters as part of a QA/QC evaluation.

   At this time, the Agencies recommend that if the data exists to evaluate accuracy, representativeness, comparability and completeness, Kennecott Land should submit these evaluations to the Agencies to supplement the reports. To assist

Kennecott Land with developing a response, the following information is provided relative to the PARCC parameters not assessed:

a. Accuracy – Is a measurement of the closeness of an individual measurement to the true value, and is assessed to ensure non-biased data has been produced. Accuracy is generally measured as percent recovery; makes use of surrogate spike, matrix spike, matrix spike duplicates, and laboratory control samples; and assesses the analytical results from these samples in comparison to lab specified historical limits.

   The quality control program assesses if the percent recovery for laboratory control samples falls within 80% to 120%, the percent recovery for matrix spike/matrix spike duplicates fall within 75% to 125%, that the result of the method blank is less than the method detection limit, that the result of equipment blanks (if collected for field, but otherwise laboratory) is less than the method detection limit, the initial calibration and calibration verification blanks (ICB/CVB) are less than the method detection limit, and if the percent recovery for initial calibration and continuing calibration verification samples (ICV/CCV) fall within 95% to 105% for ICVs, and 90% to 110% for CCVs.

b. Representativeness – Is a measure of the degree to which the sample data accurately and precisely represent the environmental condition. A quality control program for such assesses the Standard Operating Procedures (SOPs) to ensure they were followed, assesses that holding times were met, and assesses that field/equipment blank analytical results are below the method detection limit. Goals for the quality control program consist of ensuring that holding times were met 100% of the time, determining that no method blank contamination existed, and that 90% of the field duplicates met the desired RPD (relative percent difference) goals.

c. Comparability – Is a measure of the confidence that two data sets can be directly compared. In the context of Kennecott Land's assessment two data sets were not intended to be compared, but a level of effort was taken to collect field duplicates to assess the precision of the data set. As such, an evaluation of the comparability of these two data sets (used for an assessment of precision) should be included.

   A quality control program for such assesses that 100% of the units are in the same measure, that there was 100% use of the approved methods, and that all samples were collected following the SOPs. The evaluation should also verify if there was 100% compliance determined for the field duplicates, field blanks (if collected) and laboratory quality assurance collection/verification activities.

d. Completeness – Is a measure of the amount of overall valid data. A quality control program for such typically assesses if the sampling event is

complete by assessing the percentage of valid data. A goal for such assessment is 90% valid data.

4) Section 6.0 Quality Assurance/Quality Control (both reports): It is stated that three of the calculated RPDs exceeded the data quality objective of 35%. No discussion by Kennecott Land was provided to explain what corrective action was taken to address these non-compliance samples. Kennecott Land should provide a narrative on the corrective action they did or did not take, as part of assessing completeness of the data set (as recommended in Specific Comment No. 3).

Editorial Comments:

1) In the first paragraph of the Introduction section (of the SJEP report), the author has broken the paragraph mid-sentence (3rd sentence) by adding in a line break.

2) There appeared to be extra lines separating Section 3.0 and 4.0.

3) There is an incomplete separation between the two paragraphs of Section 5.0, of the South Jordan Evaporation Ponds Report.